

IN THE CLAIMS:

Please cancel claims 2, 8-12, 14 and 25 without prejudice or disclaimer, amend claims 1, 4, 5, 8-13, 15-18 and 24-27, and add claims 28 and 29 as follows.

1. (Currently Amended) A method comprising:

receiving, in ~~at least one~~a second computer node of a computer ~~cluster~~network, periodic heartbeat messages from a first computer node of the computer ~~cluster~~network, each of the ~~at least one~~ second computer node including at least one resource for performing at least one ~~cluster~~network-specific task;

transmitting heartbeat ~~acknowledgment~~acknowledgement messages from the ~~at least one~~ second computer node to the first computer node as responses to the heartbeat messages, wherein each heartbeat acknowledgement message indicates to indicate to the first computer node that the ~~at least one~~ second computer node is operative within the computer ~~cluster~~network and wherein the heartbeat acknowledgement messages form a sequence of heartbeat acknowledgement messages transmitted from the second computer node to the first computer node;

~~receiving, in at least one of the second computer nodes, state information for any one or more of the heartbeat acknowledgment messages, wherein the state information is indicative of an ability of the at least one resource to perform the at least one cluster-specific task; and~~

examining, in the second computer node, whether state information is to be retrieved

for a heartbeat acknowledgement message to be transmitted to the first computer node, the heartbeat acknowledgement message belonging to the sequence of heartbeat acknowledgement messages and the state information being indicative of current ability of the at least one resource to perform the at least one network-specific task;

retrieving the state information for the heartbeat acknowledgement message when the examining indicates that the state information is to be retrieved; and

sending the retrieved state information in ~~one or more of~~ the heartbeat ~~acknowledgment~~acknowledgement messages to the first computer node for storing the state information in the first computer node,

wherein the examining is performed for each heartbeat acknowledgement message to be transmitted to the first computer node, thereby transferring a sequence of the state information within the sequence of heartbeat acknowledgement messages.

2. (Cancelled)

3. (Previously Presented) The method according to claim 2, wherein the examining includes examining whether a predetermined condition is fulfilled.

4. (Currently Amended) The method according to claim 3, wherein the retrieving and sending the state information and the sending of the retrieved state information are performed when the examining indicates that the predetermined condition is

fulfilled, and

the transmitting comprises transmitting a heartbeat ~~acknowledgment~~acknowledgement message without state information when the examining indicates that the predetermined condition fails to be fulfilled, wherein the heartbeat ~~acknowledgment~~acknowledgement message is any of the heartbeat acknowledgement messages.

5. (Currently Amended) The method according to claim 1, further comprising determining a type of state information to be retrieved for ~~the~~a heartbeat ~~acknowledgment~~acknowledgement message.

6. (Cancelled)

7. (Cancelled)

8-12. (Cancelled)

13. (Currently Amended) A computer node ~~for a computer cluster, the computer~~
~~node~~ comprising:

at least one resource for performing at least one ~~cluster~~network-specific task;

a receiving unit configured to receive a periodic heartbeat messages from another

computer node; and

a transmitting unit configured to transmit heartbeat acknowledgement messages to the other computer node as responses to the periodic heartbeat messages, wherein each heartbeat acknowledgement message indicates ~~to indicate~~ to the other node that the computer node is operative within the computer ~~cluster~~ network and wherein the heartbeat acknowledgement messages form a sequence of heartbeat acknowledgement messages,

wherein the transmitting unit comprises an examining unit configured to examine whether state information is to be retrieved for a heartbeat acknowledgement message to be transmitted to the other computer node, the heartbeat acknowledgement message belonging to the sequence of heartbeat acknowledgement messages and the state information being indicative of current ability of the at least one resource to perform the at least one network-specific task;;

the transmitting unit further comprises a retrieving unit configured to retrieve, upon indication by the examining unit, state information for any one or more of the heartbeat acknowledgement ~~acknowledgement message messages wherein the state information is indicative of an ability of said at least one resource to perform said at least one cluster-specific task; and~~ and a sending unit, responsive to the retrieving unit, configured to send the retrieved state information in ~~any one or more of the heartbeat acknowledgement~~ acknowledgement message messages to said other computer node,

wherein the examining unit is configured to operate for each heartbeat acknowledgement message to be transmitted to said other computer node, thereby

transferring a sequence of the state information within the sequence of heartbeat acknowledgement messages to the other computer node.

14. (Cancelled)

15. (Currently Amended) A method comprising:

transmitting periodic heartbeat messages from a first computer node of a computer ~~clusternetwork~~ to ~~at least one a~~ second computer node of the computer ~~clusternetwork~~, each ~~of the at least the~~ second computer node including at least one resource for performing at least one ~~clusternetwork~~-specific task;

receiving, in the first computer node, awaiting receipt of heartbeat ~~acknowledgment~~acknowledgement messages from the ~~at least one~~ second computer node as ~~a response~~responses to the heartbeat ~~messages~~message, wherein the heartbeat message is any of the heartbeat messages and the heartbeat ~~acknowledgment~~acknowledgement messages form a sequence of heartbeat acknowledgement messages and wherein each heartbeat acknowledgement message of the sequence~~message~~ indicates to the first computer node that the ~~at least one~~ second computer node is operative within the computer ~~clusternetwork~~;

examining, in the first computer node, whether a ~~receiving the~~ heartbeat ~~acknowledgment~~acknowledgement message comprises including state information indicative of current~~an~~ ability of said at least one resource to perform said at least one

~~elusternetwork-specific task, wherein the heartbeat acknowledgement message is any of the~~
heartbeat acknowledgement messages of the sequence; and

storing the state information for managing the computer ~~elusternetwork~~.

16. (Currently Amended) The method according to claim 15, further comprising
storing the state information ~~sent to the first computer node~~ in a Management Information
Base.

17. (Currently Amended) The method according to claim 16, further comprising
transferring data from the Management Information Base to an entity external to the
computer ~~elusternetwork~~.

18. (Currently Amended) The method according to claim 15, wherein receiving
the heartbeat ~~acknowledgment~~acknowledgement message further comprises removing the
second computer node from the ~~elusternetwork~~ when no heartbeat acknowledgement
message is received within a predetermined period of time.

19-23. (Cancelled)

24. (Currently Amended) ~~A computer node for a computer cluster, the computer~~
~~node~~ comprising:

a transmitting unit configured to transmit periodic heartbeat messages to ~~at least one~~ a second computer node of the a computer network, cluster, ~~each of the at least one~~ the second computer node including at least one resource for performing at least one ~~cluster~~ network-specific task;

a receiving unit configured to receive the heartbeat ~~acknowledgment~~ acknowledgement messages from the ~~at least one~~ second computer node as responses ~~response~~ to the heartbeat messages, wherein the heartbeat ~~acknowledgment~~ acknowledgement messages form a sequence of heartbeat acknowledgement messages and wherein each heartbeat acknowledgement message of the sequence indicates that the ~~indicating that the~~ ~~at least one~~ second computer node is operative within the computer network ~~cluster~~;

an examining unit configured to examine whether ~~when~~ heartbeat acknowledgement message ~~messages~~ comprises state information indicative of ~~an~~ current ability of the at least one resource to perform said at least one ~~cluster~~ network-specific task, wherein the heartbeat ~~acknowledgment~~ acknowledgement message is any of the heartbeat acknowledgement messages of the sequence; and

a storing unit configured to store the state information for managing the computer ~~cluster~~ network.

25. (Cancelled)

26. (Currently Amended) A computer node ~~for a computer cluster, the computer~~
~~node~~ comprising:

at least one resource for performing at least one ~~cluster~~network-specific task;

receiving means for receiving periodic heartbeat messages from another computer
node; and

transmission means for transmitting heartbeat acknowledgement messages to the
other computer node as responses to the periodic heartbeat messages, wherein each
heartbeat acknowledgement message indicates to indicate to the other computer node that
the computer node is operative within ~~the a computer cluster~~network and wherein the
heartbeat acknowledgement messages form a sequence of heartbeat acknowledgement
messages.

wherein the transmission means comprises examining means for examining whether
state information is to be retrieved for a heartbeat acknowledgement message to be
transmitted to the other computer node, wherein the heartbeat acknowledgement message
belongs to the sequence of heartbeat acknowledgement messages and wherein the state
information is indicative of current ability of the at least one resource to perform the at least
one network-specific task;

wherein the transmission means also comprises retrieving means for retrieving,
upon indicating by the examining means, the state information for any one or more of the
heartbeat acknowledgement~~acknowledgement~~ messages, wherein the state information is
indicative of an ability of the at least one resource to perform the at least one cluster-specific

task; ~~and~~ sending means, responsive to the ~~second~~ retrieving means, for sending the retrieved state information in ~~any one or more of the~~ heartbeat ~~acknowledgment~~ acknowledgement message to said other computer node,

wherein the examining means are configured to operate for each heartbeat acknowledgement message to be transmitted to the other computer node, thereby transferring a sequence of the state information within the sequence of heartbeat acknowledgement messages.

27. (Currently Amended) A computer node ~~for a computer cluster, the computer node comprising:~~

transmitting means for transmitting periodic heartbeat messages to at least one second computer node of ~~the a computer cluster~~ network, ~~each of the at the least one second computer node including at least one resource for performing at least one cluster~~ network-specific task;

reception means for receiving the heartbeat ~~acknowledgment~~ acknowledgement messages from the at least one second computer node as responses to the heartbeat messages, wherein the heartbeat acknowledgement messages form a sequence of heartbeat acknowledgement messages and wherein each heartbeat acknowledgement message indicates ~~indicating~~ that the ~~at least one second computer node~~ is operative within the computer ~~cluster~~ network;

examining means for examining ~~when~~ whether a heartbeat acknowledgement

messages comprises state information indicative of ~~an~~current ability of the at least one resource to perform said at least one ~~cluster~~network-specific task, wherein the heartbeat ~~acknowledgment~~acknowledgement message is any of the heartbeat acknowledgement messages of the sequence; and

~~a~~-storing means for storing the state information for managing the computer ~~cluster~~network.

28. (New) The computer node according to claim 24, wherein the computer node is operably connected to a Management Information Base for storing the state information sent to the first computer node.

29. (New) The computer node according to claim 24, further comprising a network interface for communicating with an access unit configured to access the Management Information Base.